

Water Program - CSE

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Centre for Science and Environment

Research & advocacy

Programmes

- Air Pollution & Mobility
- Climate Change
- Industry: Pollution & Energy
- Environment Education
- Sustainable Food Systems
- Sustainable Habitats & Cooling
- Municipal Solid Waste
- **Water, Wastewater, Sanitation**

Communication

Pollution monitoring

- **Environment Monitoring Lab**
Pollution, toxins in food, waste, water, FSM
- Independent information in public domain

Education, Training

Anil Agarwal Environment Training Institute

- Build capacities on environment (India & across global South)
- Green campus

Media resource centre

- Strengthen reportage of mainstream and regional journalists on environment

Down To Earth (since 1992)

- English, Hindi & Digital editions

Websites, E-newsletters, media

- Campaign tools for outreach
- India Environment Portal

About CSE, Water Program

- Centre for Science & Environment (CSE) was set up in 1980's, in Delhi – as a registered non profit society.
- An institution to bridge the **gap between information and knowledge**; between knowledge and public awareness; **to influence public policies and practices** for sustainable development – *'to promote **sustainable development with equity, participation and democracy**'*.
- Awarded the *Stockholm Water Prize* – 2004, *Indira Gandhi Prize for Peace, Disarmament and Development* – 2018, *Edinburgh Medal* – 2022
- **Centre of Excellence** in the Sustainable Water management area – Ministry of Urban Development
- **National Key Resource Centre** of Ministry of Jal Shakti
- **Anil Agarwal Environment Training Institute (AAETI)** – State-of-art training institute and living lab

Action Research

Advocacy

Capacity
Development

Cross-Learning

Water Programme

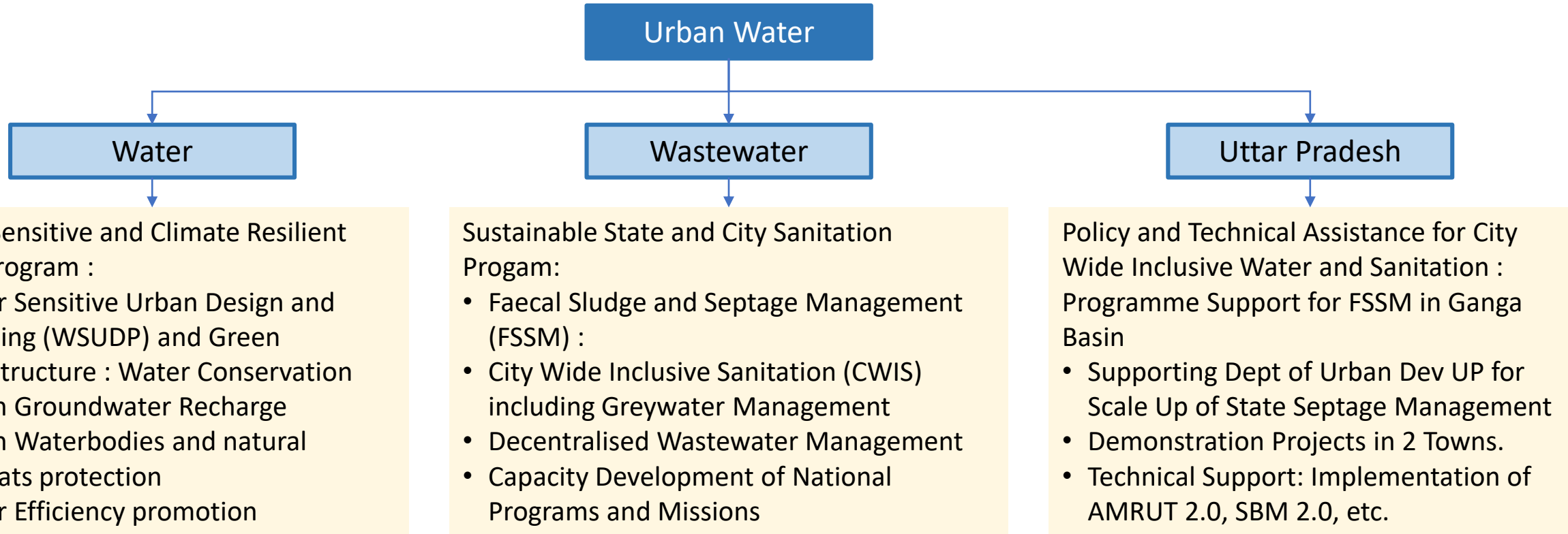
Urban Water

Rural Water

FSM Laboratory

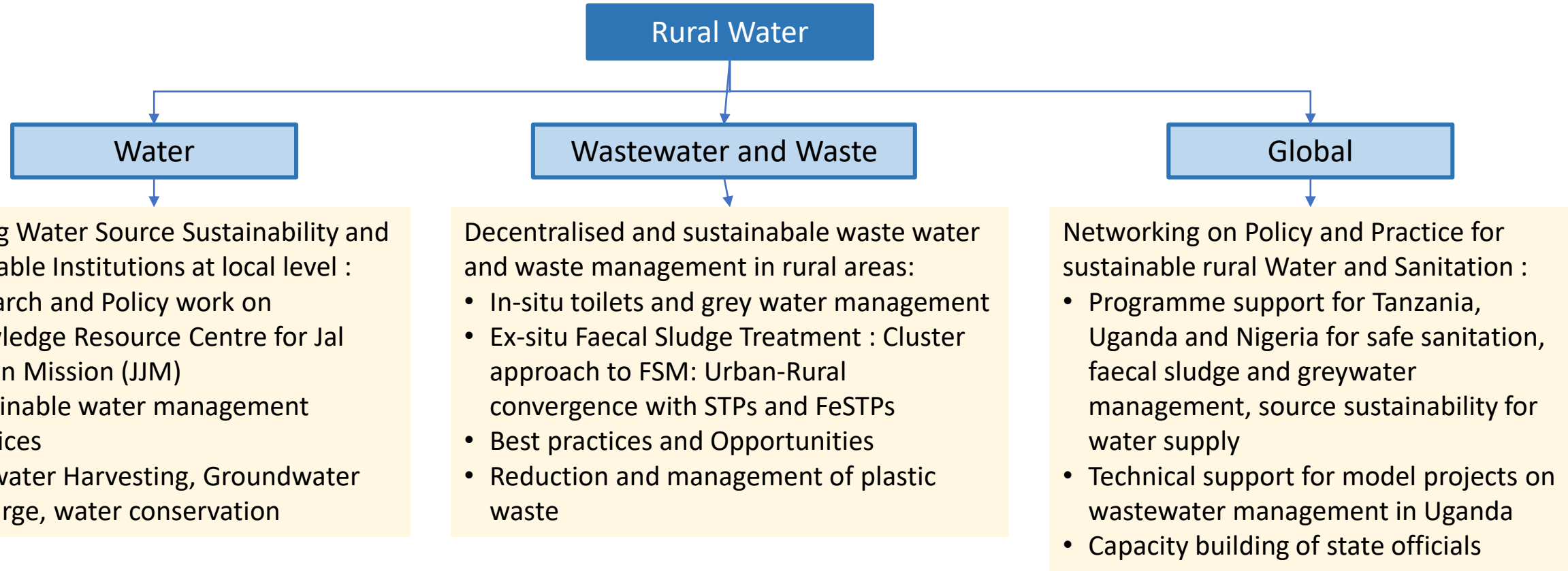
- **Team strength:** 24 members (7 urban, 7 rural, 5 lab, 5 UP)
- **Diverse professions:** Engineers, Architects, Planners, Economics, Public Policy, Env. Science, Management
- **Offices:** Delhi, Lucknow (PSU), Bijnor, Chunar (TSU), AAETI (Laboratory)

Urban Water



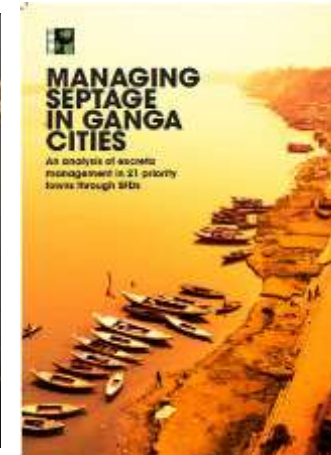
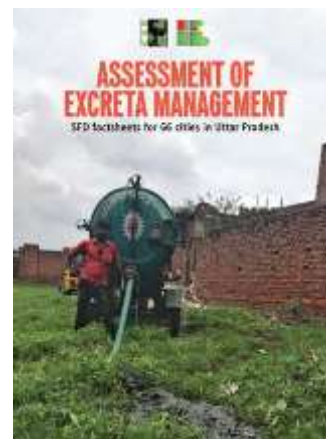
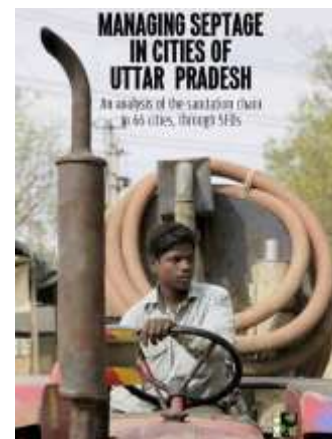
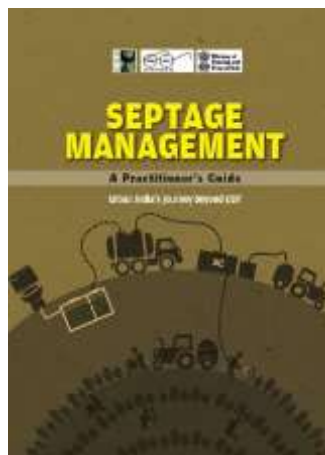
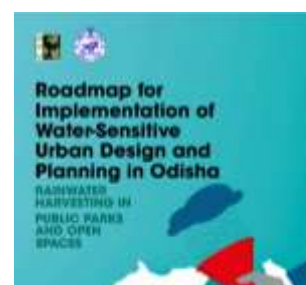
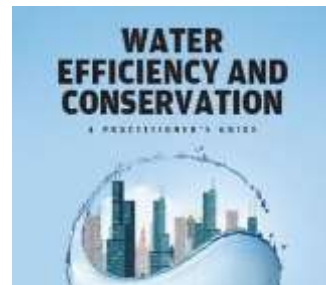
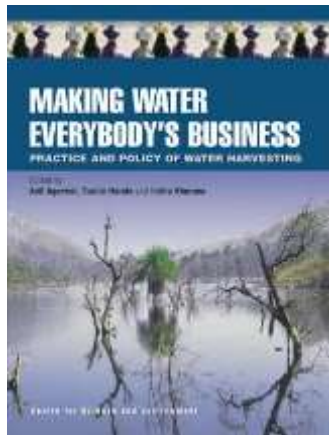
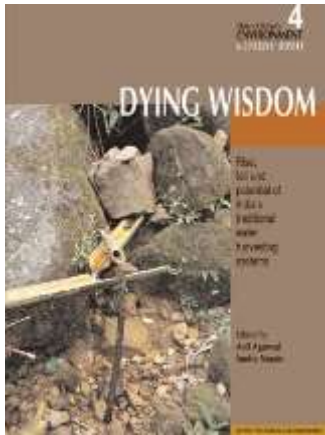
- **School of Water and Waste (SWW), conducted 70+ capacity building programs, alumni of 7,000+ practitioners**
- **Publications** : 15+ action research reports and 7 toolkits.
- **Pilot Projects**: RWH structures, DWWTS, FSTP in Chunar, SeTP in Bijnor | Model City Sanitation Plans: Bijnor, Bodhgaya
- **Knowledge Hub** : Web-based compendium **MOUNT** and **C-GINS**, collection of 200+ BMPs on sustainable water and sanitation practices
- **Capacity Building** : City Officials, Consultants, Professionals : SBM2.0, NMCG capacity development program
- **Research priorities**: CWIS approach for Global South, Water Sensitive Cities Typologies and Climate Change, Greywater
- **Proposed work areas for 2022-25**: Water Conservation in Cities of India and Global South(Storm water recharge and Ground water management, Sustainability of FSSM(O&M of FSTPs and SeTPs, FSM Bye-Laws, Co-Treatment)
- **Global Outreach**: Asia (Bangladesh, Nepal) | Africa (South Africa, Kenya, Tanzania) for SFD, FSSM, CWIS, Water Sensitive Cities

Rural Water

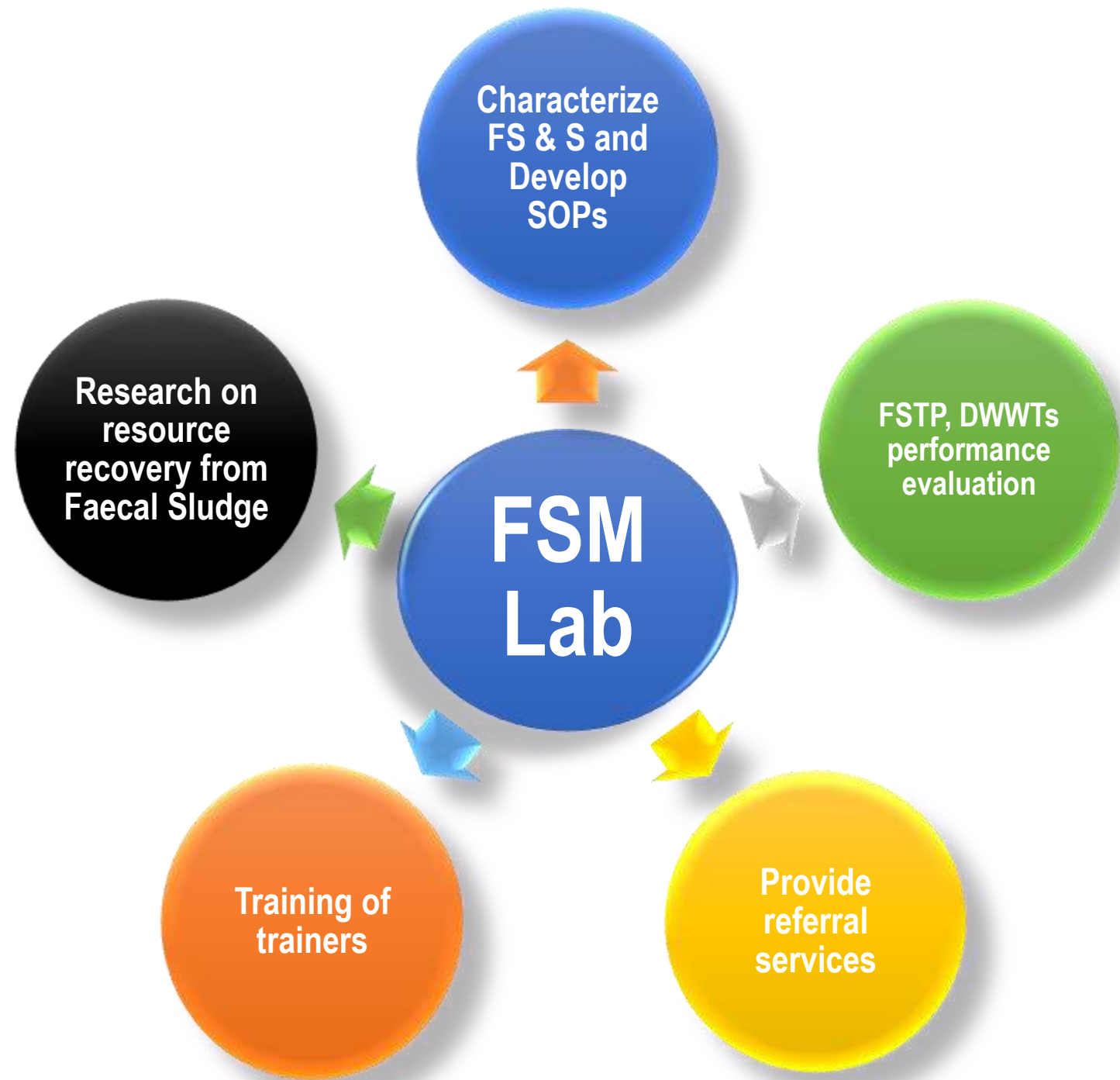


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- **Capacity Building of National Programs and Missions** – Water Conservation, FSM and Grey water Management under JJM
- **Research and Policy Guidance** : Best practices in Rural Water, Waste water and Solid waste management. Develop a scoping paper on reduction of plastic waste in rural areas.
- **Proposed work for 2022-25** : Policy and Research on Rural-Urban water and waste water/grey water; Decentralised water, waste and water management and systems sustainability.
- **Global Outreach** : Networking with countries of Africa on their National Rural Water and Waste water management Policy and Programs. Capacity building and joint initiatives.

Publications and Web-Compendiums

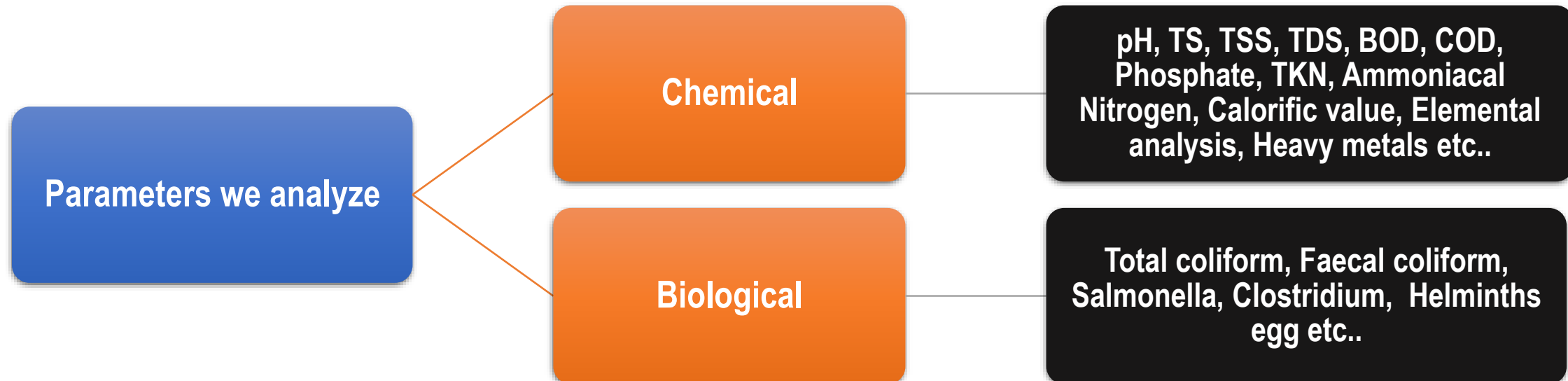


FSM Lab at AAETI



What We Do:

- Faecal Sludge Treatment Plants(FSTPs) : Technology evaluation
- Fecal Sludge Characterization
 - Chemical & Biological
 - Research on the resource recovery from fecal sludge
- Capacity Building: Laboratory skill development on FSM
- Wastewater Analysis (Decentralized Wastewater Treatment Systems)
 - Analyze the efficacy of identified DEWATS systems



Ground Water Management : Perspective Building

Why ; What ; How

Urban Ground Water Management : The Why

- **Existing inequity in urban water supply**, a crisis of water shortages
- **Managing water demand and reducing waste water footprint** : as a larger goal of urban water management : has to be detailed out.
- **Large extent of urban built environment + Congested Slums and Informal settlements** : normative application of WSUDP and Green Infrastructure concepts uniform concepts ? Grey infrastructure needed?
- **Priority for understanding/mapping urban ground water aquifers** : mapping physically
- **Mindless urban construction** of underground parking, institutional/commercial buildings, underground metros, river front development/tourism projects : negate WSUDP and GI.
- **Importance of Urban Planning**. A City Master Plan is an enabling legislative instrument that **define entitlements of people** for water and sanitation also. WSUDP and GI integration in Master Plans needed.

Urban Ground Water Management :

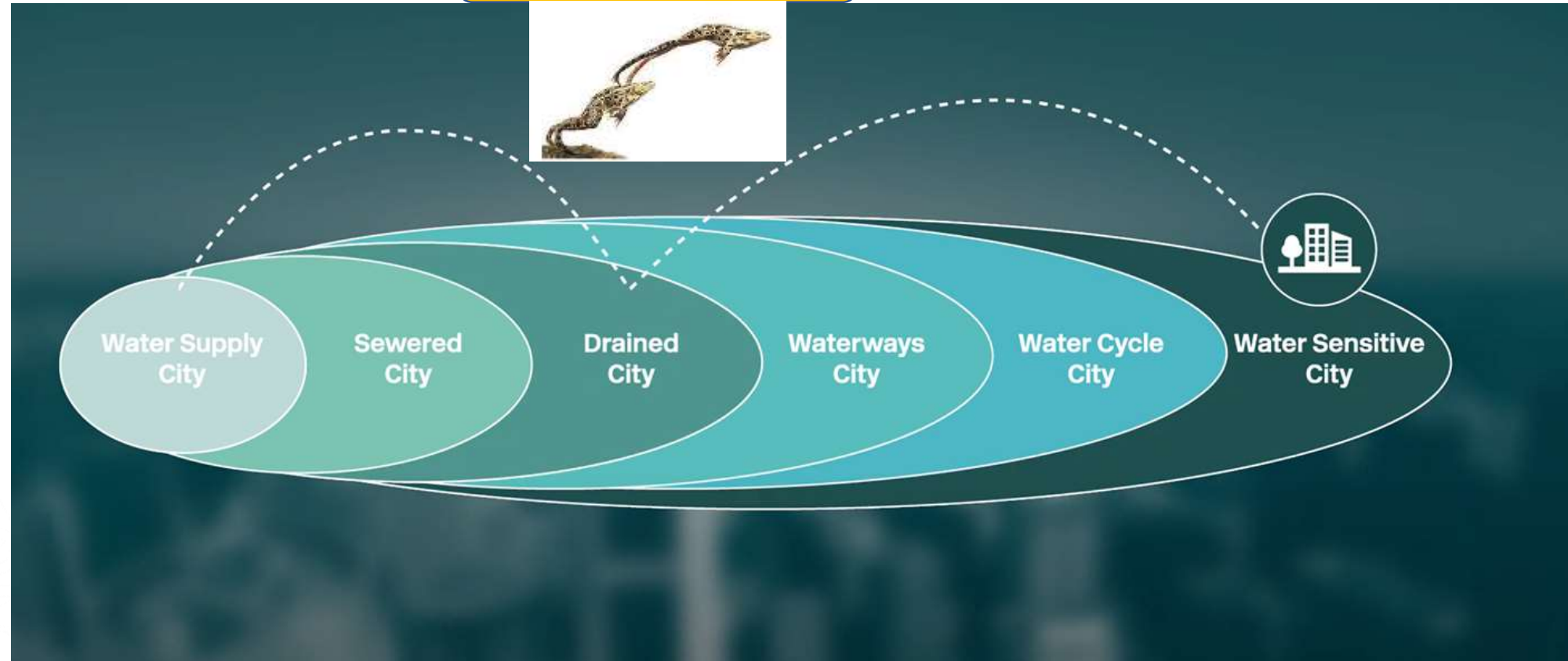
Equity, Low Carbon/Energy perspective:

CSEI Veena Sreenivasan

- **Preservation of the shallow aquifer helping the urban poor *in some coastal cities*** like Chennai -- e.g. where better management could reduce saline intrusion. Urban poor in these places typically still use India Mark Pumps and preservation of freshwater just means better quality water and better quality of life for them (clothes not getting stained, vessels not getting scaled etc.)
- For cities like Bangalore the case is different : here the argument is **partly the WSUD argument (local resource dependence) above and partly a monetary/low-carbon argument**. Bangalore is at the top of a hill -- pumping water up is expensive and energy + carbon intensive. It just makes sense to use groundwater conjunctively instead of letting the water flow down to the valley as wastewater/ floodwater and get piped water from the Cauvery.
- Again the **equity argument** for urban groundwater doesn't have to do with **whether it's there or not, but whether the poor have access to it**. There are many slums in Bangalore (e.g.) where the MLAs provide a local borewell point with their own funds. **In other words, if groundwater is preserved -- additional work needs to be done to ensure the poor benefit -- it is not automatic.**

Water Sensitive City:

Need to Leapfrog



Urban Ground Water Perspective : What to How

- The fallacy of the assumption that cities of developing countries, with a majority low income settlements - can somehow straight away jump from grey infrastructure to green infrastructure creation. What is needed is a combination of green and grey urban infrastructure, to address both water conservation as well as water and waste water service levels in low income settlements.
- Address ground water recharge from an understanding of urban aquifer topologies and not as a blind urban water recharge initiative.
- The risk of large scale ground water recharge initiatives in public places in urban areas, need to be assessed, for pollution and ground water contamination risk.
- An understanding of city water balance, as more than an accounting exercise of water supply and demand.
- WSUDP and GI have to be situated in a local context of a city, in the context of conflicts over resources and power relations. Not as an abstract green vs. grey infrastructure and planning issue at different scales of operation.